BNL-64094 (Abstract)

GRAINS OF SALTS: INFLUENCE OF ANTHROPOGENIC AEROSOLS ON CLIMATE

S. E. Schwartz

16th Annual Meeting of the American Association for Aerosol Research (AAAR), Denver, CO, October 13-17, 1997.

Anthropogenic atmospheric aerosols, consisting mainly of combustion-derived sulfur, nitrogen, and carbon species, scatter solar radiation. Additionally these aerosols, by serving as cloud condensation nuclei, are thought to increase the brightness of clouds. Both effects are thought to decrease planetary absorption of solar radiation, with a resultant cooling influence on climate over the industrial period. Each effect is estimated to be of global-average magnitude comparable to the warming influence of enhanced concentrations of greenhouse gases, but present estimates are highly uncertain. This uncertainty in aerosol "forcing" represents the dominant uncertainty in factors influencing climate change over the industrial period. This talk outlines the mechanisms of these aerosol influences, presents estimates of their magnitudes, and identifies priorities of research necessary to reduce their uncertainties.

Research by BNL investigators was performed under the auspices of the U.S. Department of Energy under Contract No. DE-AC02-98CH10886.